DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 9, 2008 has been entered.

2. Claims 1 and 2 have been amended. Claims 5 and 6 have been added. Claims 1-6 are pending and are rejected for the reasons given below.

Specification

3. The objections to the specification from the Office Action mailed November 15, 2006 are maintained. The amendment filed is noncompliant and the amended specification will not be entered, see 37 C.F.R. 1.121 and below:

§ 1.121 Manner of making amendments in applications.

(b) Specification . Amendments to the specification, other than the claims, computer listings (§ 1.96) and sequence listings (§ 1.825), must be made by adding, deleting or replacing a paragraph, by replacing a section, or by a substitute specification, in the manner specified in this section.

(1) Amendment to delete, replace, or add a paragraph . Amendments to the specification including amendment to a section heading or the title of the invention which are considered for amendment purposes to be an amendment of a paragraph, must be made by submitting:

(i) An instruction, which unambiguously identifies the location, to delete one or more paragraphs of the specification, replace a paragraph with one or more replacement paragraphs, or add one or more paragraphs;

(ii) The full text of any replacement paragraph with markings to show all the changes relative to the previous version of the paragraph. The text of any added subject matter must be shown by underlining the added text. The text of any deleted matter must be shown by strike-through except that double brackets placed before and after the deleted characters may be used to show deletion of five or fewer consecutive characters. The text of any deleted subject matter must be shown by being placed within double brackets if strikethrough cannot be easily perceived;

(iii) The full text of any added paragraphs without any underlining; and

(iv) The text of a paragraph to be deleted must not be presented with strike-through or placed within double brackets. The instruction to delete may identify a paragraph by its paragraph number or include a few words from the beginning, and end, of the paragraph, if needed for paragraph identification purposes.

(2) Amendment by replacement section . If the sections of the specification contain section headings as provided in § 1.77(b), § 1.154(b), or § 1.163(c), amendments to the specification, other than the claims, may be made by submitting:

(i) A reference to the section heading along with an instruction, which unambiguously identifies the location, to delete that section of the specification and to replace such deleted section with a replacement section; and;

(ii) A replacement section with markings to show all changes relative to the previous version of the section. The text of any added subject matter must be shown by underlining the added text. The text of any deleted matter must be shown by strike-through except that double brackets placed before and after the deleted characters may be used to show deletion of five or fewer consecutive characters. The text of any deleted subject matter must be shown by being placed within double brackets if strike-through cannot be easily perceived.

(3) Amendment by substitute specification . The specification, other than the claims, may also be amended by submitting:

(i) An instruction to replace the specification; and

(ii) A substitute specification in compliance with §§ 1.125(b) and (c).

(4) Reinstatement of previously deleted paragraph or section . A previously deleted paragraph or section may be reinstated only by a subsequent amendment adding the previously deleted paragraph or section.

(5) Presentation in subsequent amendment document . Once a paragraph or section is amended in a first amendment document, the paragraph or section shall not be represented in a subsequent amendment document unless it is amended again or a substitute specification is provided.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reimers et al. (US 6,416,904) in view of Kaido et al. (US 6,284,405).

Reimers et al. teach a design and method for making calendered, double side segment coated webs such as for use in non-aqueous rechargeable lithium ion batteries (abstract). Reimers et al. teach a thin metal foil web that is coated with a substance

containing an electroactive powder, such as one that is used in lithium ion batteries (column 4 lines 45-57).

Reimers et al. teach that the coating is applied in segments, and that the segments on opposite sides of the web are staggered. Reimers et al. further teach that when the staggering is at 2 mm, this is most effective for preventing damage during production, when the web is calendered to press the coated segments (column 5 lines 3-5).

Reimers et al. fail to teach that a starting side of the coated section has a larger protuberance than a finishing side.

Kaido et al. teach a nonaqueous electrolyte battery containing an electrode plate like the plate of Reimers et al., except the coating sections of Kaido et al. contain segments having a first end and a second end, wherein the second end is shorter than the first (Figure 10B, column 5 lines 10-12).

The coating sections of Kaido et al., having one side shorter than the other, which is the same as having a larger protuberance on the starting side than the finishing side (see arrows of Fig. 10B), are desirable since the distribution of the active material is more uniform when the battery is wound (column 7 line 54 - column 8 line 11).

With regard to claim 5, if the shape of the coated sections of Kaido et al. is used in the web of Reimers et al., which as discussed above has staggered coating sections, then a peak of the starting side of the second electrode active material would be set in a

position corresponding to an inclined portion in the range from a peak of the starting side of the first electrode active material layer to an intermediate portion of the first electrode active material layer.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the shape of the coating sections of Kaido et al. in the coating sections of Reimers et al. since the shape allows for even distribution of active material once the battery is wound.

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reimers et al. in view of Kaido et al. as applied to claim 1 above, and further in view of Fukumura et al. (US 6,027,835).

The teachings of Reimers et al. and Kaido et al. as discussed above are incorporated herein.

Reimers et al. teach that the electrode may be spirally wound to create a jellyroll battery (column 8 lines 6-7). The battery may be housed in a cylindrical or prismatic case, and a separator is wound between the anode and cathode (column 2 lines 1-8).

Reimers et al. in view of Kaido et al. fail to teach that the electrolyte is poured into the battery case that is then sealed.

Fukumura et al. teach a battery containing an electrode sheet having shifted electrode segments coated on it (abstract). The sheets are wound with a separator and

placed in a battery can. An electrolyte is then poured into the can, and it is sealed (Figure 2; column 5 lines 27-40).

It would be desirable to seal the battery case containing the wound assembly and electrolyte, since sealing would prevent contamination or leakage of the electrolyte and enable the battery to be used in implantable or underwater applications.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to seal the battery case containing the wound assembly and electrolyte, since sealing would prevent contamination or leakage of the electrolyte and enable the battery to be used in implantable or underwater applications.

Reimers et al. further teach that various lithium salt and nonaqueous electrolyte solvent combinations may be used in the electrolyte.

Reimers et al. in view of Kaido et al. do not explicitly teach that the nonaqueous solvent is organic.

Fukumura et al. teach several examples of organic solvents for electrolytes in lithium batteries (column 7 lines 7-29).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use an organic solvent in the electrolyte because the organic solvent would be chemically compatible with the lithium ion battery components of Reimers et al. in view of Kaido et al. which requires a nonaqueous solvent.

7. Claims 2 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reimers et al. in view of Kaido et al. and Meyering et al. (US 2001/0017280).

The teachings of Reimers et al. and Kaido et al. as discussed above are incorporated herein.

Reimers et al. in view of Kaido et al. teach a coated web for use as an electrode in a battery.

The method for producing this electrode as taught by Reimers et al. includes double side segment coating (column 6 lines 35-67). The segmented coating is applied to a first side of the web. The web is then turned over and run through the same coating machine to produce coated segments on the opposite side. The web is calendered, or pressed.

Reimers et al. disclose a method for forming electroactive segments wherein the leading edges and trailing edges of the coating segments are on a first side of the current collector are proximate the leading edges and trailing edges, respectively, on the second side of the current collector (column 3 lines 45-55).

Reimers et al. in view of Kaido et al. fail to teach that the coated sections are made on either side in the same conveying direction and consecutively.

Meyering et al. teach a method of coating a membrane (abstract). Meyering et al., Reimers et al. and Kaido et al. are analogous art because all are concerned with coating (an electrode or a dopant) onto a web (a conductive substrate or a membrane).

One of ordinary skill in the art would look to Meyering et al. for the method of performing a similar coating using different materials, as in Reimers et al. or Kaido et al.

Meyering et al. further teach coating both sides of the substrate consecutively (Figure 2, abstract).

It would be desirable to coat both side of the substrate of Reimers et al. in view of Kaido et al. consecutively, such as taught by Meyering et al., since such a method would reduce manufacturing time by combining two steps into one. The method of Meyering et al. could be performed to suit the limitations of Reimers et al. in view of Kaido et al, specifically that there be distinct coated areas, since the coating injecting apparatus of Reimers et al. and Kaido et al. (14 of Figure 1 of Reimers et al. or 12 of Figure 1 of Kaido et al.) is analogous to 60, 62, 64 in Figure 2 of Meyering et al.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to coat both side of the substrate of Reimers et al. in view of Kaido et al. consecutively, such as taught by Meyering et al., since such a method would reduce manufacturing time by combining two steps into one.

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reimers et al. in view of Kaido et al. and Meyering et al. as applied to claim 2 above, and further in view of Fukumura et al.

The teachings of Reimers et al., Kaido et al. and Meyering et al. as discussed above are incorporated herein.

Reimers et al. in view of Kaido et al. and Meyering et al. teach that the electrode may be spirally wound to create a jellyroll battery (column 8 lines 6-7). The battery may be housed in a cylindrical or prismatic case, and a separator is wound between the anode and cathode (column 2 lines 1-8).

Reimers et al. in view of Kaido et al. and Meyering et al. fail to teach that the electrolyte is poured into the battery case that is then sealed.

Fukumura et al. teach a battery containing an electrode sheet having shifted electrode segments coated on it (abstract). The sheets are wound with a separator and placed in a battery can. An electrolyte is then poured into the can, and it is sealed (Figure 2; column 5 lines 27-40).

It would be desirable to seal the battery case containing the wound assembly and electrolyte, since sealing would prevent contamination or leakage of the electrolyte and enable the battery to be used in implantable or underwater applications.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to seal the battery case containing the wound assembly and electrolyte, since sealing would prevent contamination or leakage of the electrolyte and enable the battery to be used in implantable or underwater applications.

Reimers et al. further teach that various lithium salt and nonaqueous electrolyte solvent combinations may be used in the electrolyte.

Reimers et al. in view of Kaido et al. Meyering et al. do not explicitly teach that the nonaqueous solvent is organic.

Fukumura et al. teach several examples of organic solvents for electrolytes in lithium batteries (column 7 lines 7-29).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use an organic solvent in the electrolyte because the organic solvent would be chemically compatible with the lithium ion battery components of Reimers et al. in view of Kaido et al. and Meyering et al. which requires a nonaqueous solvent.

Response to Arguments

9. Applicant's arguments with respect to claims 1-6 have been considered but are moot in view of the new grounds of rejection, see above.

On pages 7-10, Applicant discusses the newly added limitations, stating that Reimers et al. do not teach the protuberance greater on the first end, or the coating in the same conveying direction. The examiner agrees that Reimers et al. do not teach these limitations, and a new rejection of these limitations is provided above.

On page 11, at the bottom of the page, Applicant argues that Reimers et al. do not teach a shift (or gap) between the edges of the coating segments. The examiner strongly disagrees. It is clear from Fig. 3e of Reimers et al. that such a shift is taught. Whether one end is called a leading or trailing edge is simple semantics: in the apparatus claims, the manner in which the product is made is not material so long as the final product is the same (MPEP 2113).

On page 12, at the bottom of the page, Applicant also argues that Fukumura et al. do not teach intermittent coating or a protuberance. This is not material to the rejection, since Reimers et al. teach both intermittent coating and a protuberance, and since Reimers et al. in view of Kaido et al. teach the protuberance of the newly amended claims. It is not necessary for Fukumura et al. to teach all of the limitations as long as all of the limitations are taught in the combination.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alix Elizabeth Echelmeyer whose telephone number is (571)272-1101. The examiner can normally be reached on Mon-Fri 8-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Susy N. Tsang-Foster can be reached on 571-272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Alix Elizabeth Echelmeyer
Examiner
Art Unit 1795

aee

/Susy N Tsang-Foster/

Supervisory Patent Examiner, Art Unit 1795